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A position domain comparison between VMF1 and the new VMF3

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The Vienna Mapping Functions 1 (VMF1) has been the reference mapping function, recommended by the International Earth Rotation Service standards, and systematically used by GNSS Analysis Centers all over the world. Recently, an improved version has been developed, the Vienna Mapping Functions 3 (VMF3). The objective of this work is to compare and assess the impact of using VMF1 and VMF3 at position domain using GNSS observations. The assessment is based on position repeatability since the 'published coordinates' from the GNSS stations are based on VMF1, fact that could bias the assessment. A selected set of globally distributed GNSS stations is used, processed for an extended period of over 10 years, using the newly available $REPRO_2$ orbits and clocks, in precise point positioning mode. Different strategies for handling neutral atmospheric gradients is being used. This is a work in progress and first results will be presented and discussed in this presentation.